

MQ110-A3-UV

AO MODULATOR/SHIFTER



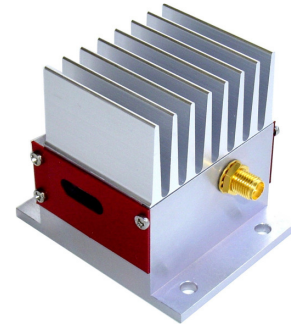
Product Overview

These modulators have been specially designed for applications for which TeO₂ cannot be used. Their large aperture allows user to combine the laser beam without additional optics. They cover the UV range up to the visible range. Suitable for DPSS 355 nm or UV AR+lasers

They can also be use as fixed frequency shifters @ 110 MHz, as well as variable frequency shifters or deflectors with a frequency range up to 110 +/- 15MHz

Features

- High laser power
- Linear polarization
- Large aperture
- High diffraction efficiency



[Access to your operating manual](#)

Technical Specifications

Parameter	Specification
Material-Acoustic mode-Velocity	Fused silica [L] - 5960 m/s
Optical Wavelength range (AR coated)	325-425 nm
Transmission	>95%
Input / Output Polarization	Linear perpendicular to baseplate
Active Aperture	3 x 3 mm ²
Carrier Frequency / Frequency shift	+/- 110 MHz
Separation Angle (0-1)	> 6 mrd
Static Extinction Ratio	>30 dB
Rise / Fall time	110 ns / mm
Diffraction Efficiency	>85%, Nom 90 % with TEM00 laser beam
Analog Amplitude modulation bandwidth (-3 dB)	>4 MHz @ 1mm
Max optical power density	> 10 W/mm ²
Input impedance	Nom 50 Ω
V.S.W.R.	Nom < 1.2:1
RF Power / Connector	≤ 4 W / SMA
Size / Weight	(Lxlxh) 47 x 60x 53 mm ³ / 250 g IN PRO 93
Operating Temperature	+10 to +40 Non condensing
Storage Temperature	-40 to +50 Non condensing

Options / On request

VARIABLE FREQUENCY SHIFT

110 +/- 15 MHz

Diffraction efficiency>75%

Housing

Rise Time (T_r) is beam diameter (Φ) sensitive:

$$T_r = 0.66 \frac{\Phi}{V}$$

Amplitude modulation bandwidth (F_{-3dB}) is rise time (T_r) sensitive:

$$F_{-3dB} = \frac{0.48}{T_r}$$

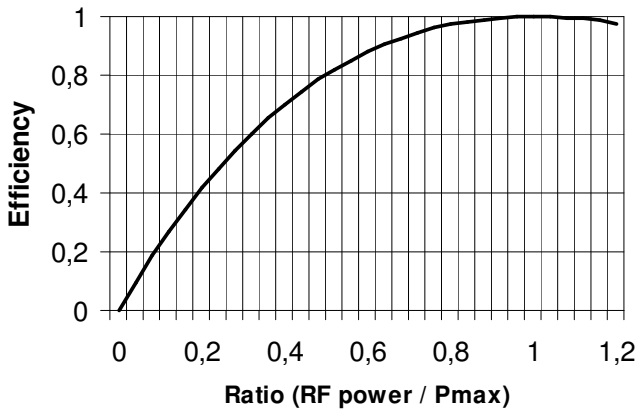
Separation angle ($\Delta\theta$) is wavelength (λ) sensitive:

$$\Delta\theta = \frac{\lambda F}{V}$$

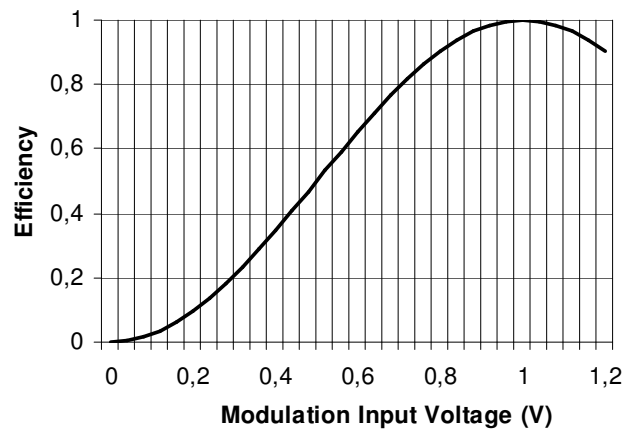
RF power (P) is wavelength (λ) sensitive:

$$\frac{P_1}{P_2} = \frac{\lambda_1^2}{\lambda_2^2}$$

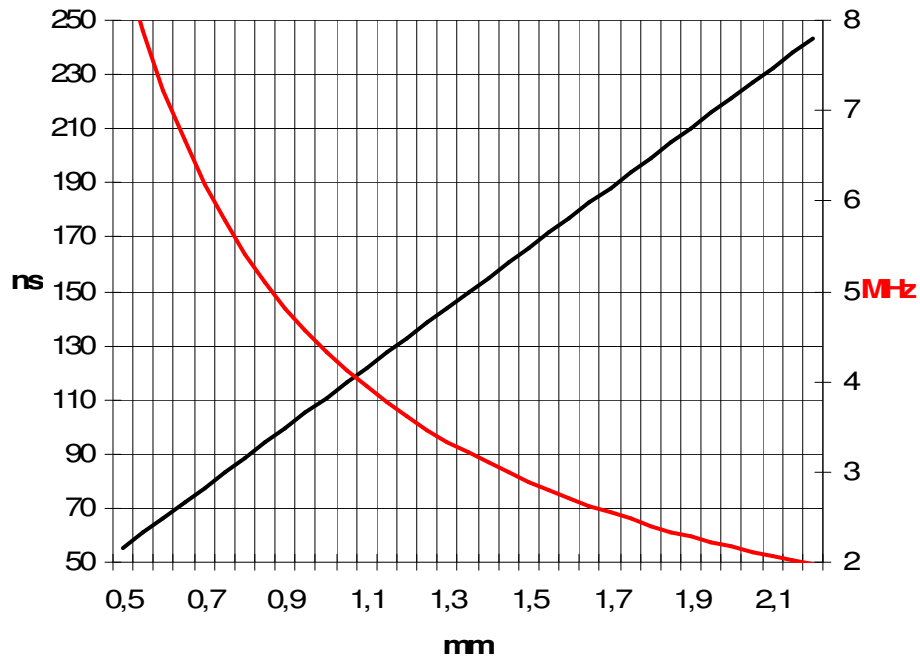
Relative Efficiency versus RF power



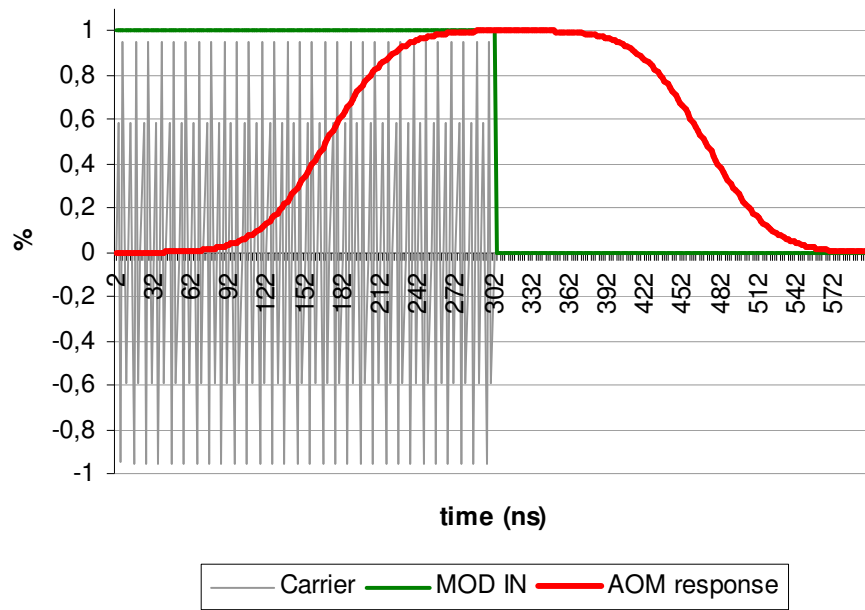
AO relative Efficiency vs driver MOD IN



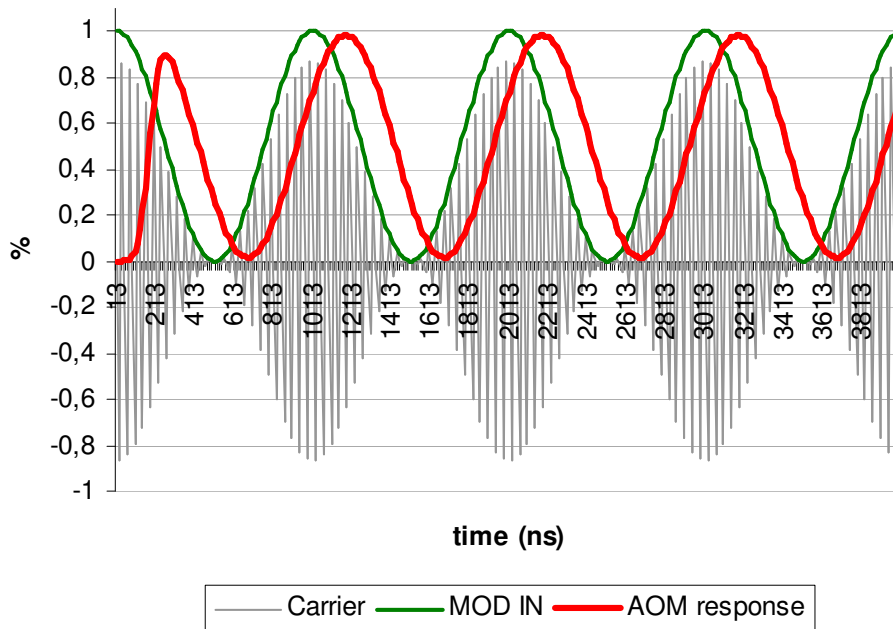
Rise Time (black) / Analog Modulation BW (-3dB) vs Beam diameter

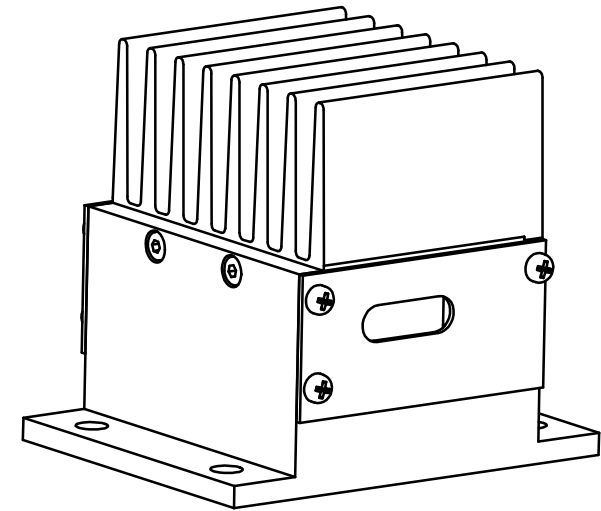
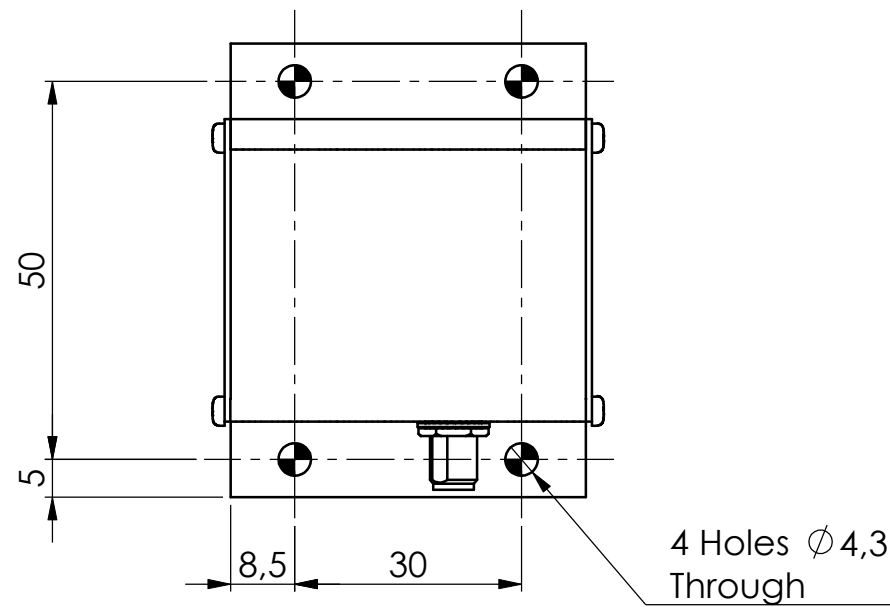
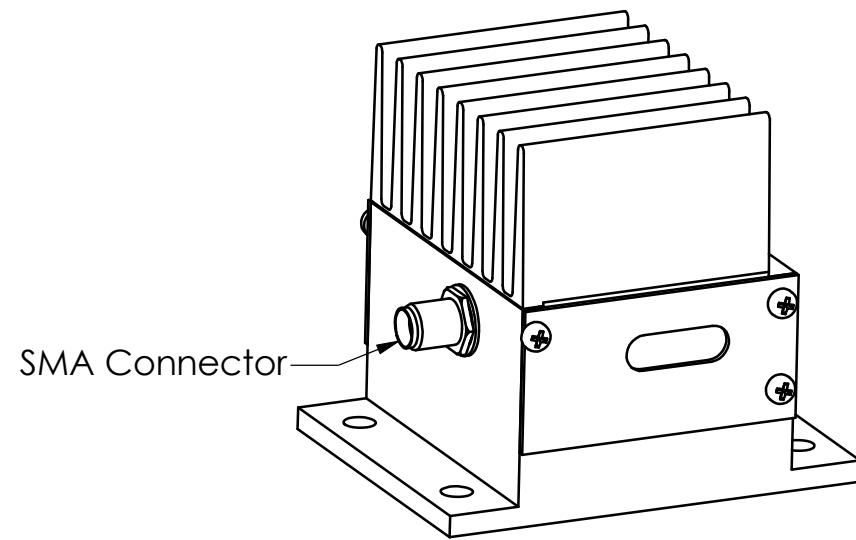
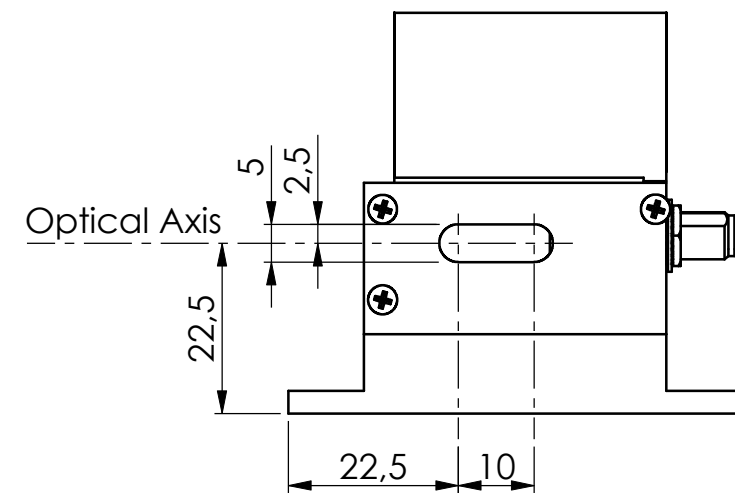
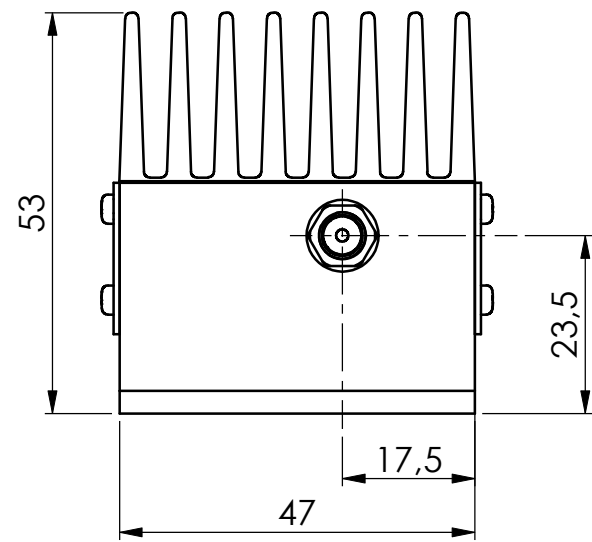
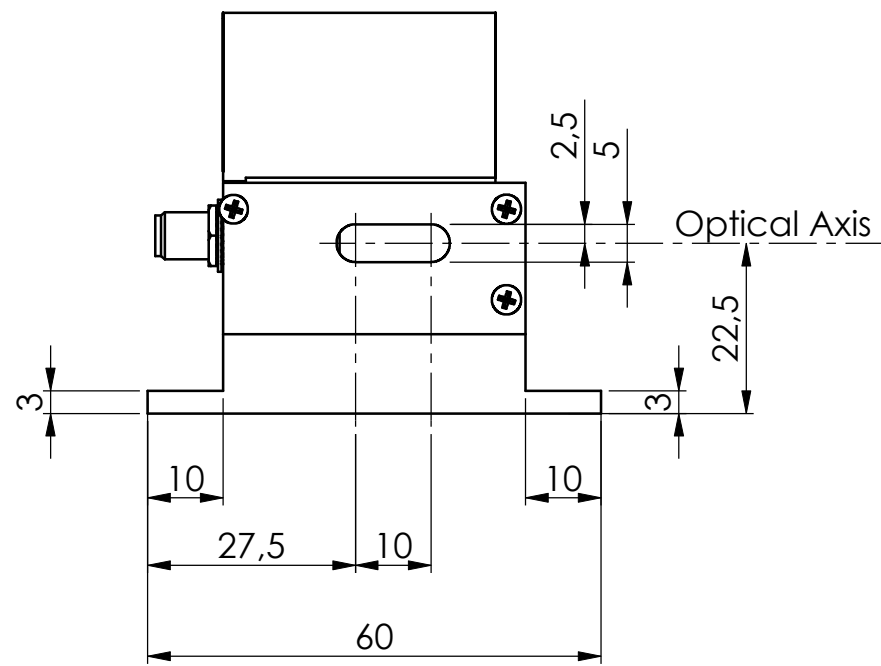


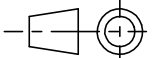
Relative Efficiency / AOM temporal response



Relative Efficiency / AOM temporal response (1MHz)





B	26/01/07	E.D	Mise en page
A	08/06/05	O.G	Plan initial / Initial Drawing
Indice Index	Date	Auteur Author	Modifications
Conception Design	E.D	PLAN D'INTERFACE / OUTLINE DRAWING IN-PRO-93	
Vérification Checking	L.F		
Tolérance Tolerance	ISO 2768mK		
Echelle Scale	1:1	Référence / Reference	
		Format A3	Ce document est la propriété de A.A.S.A. Il est strictement interdit de reproduire ce document ou une partie sans l'autorisation de A.A.S.A. This document is the property of A.A.S.A. It is strictly prohibited to reproduce this document or a part without the authorization of A.A.S.A.
		Folio / Sheet 1/1	Indice / Index B



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